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THE

MUSICAL GUIDE

FOR

SINGING AND THE PIANO-FORTE;

IN WHICH

A CLEAR METHOD OF EXPLAINING THE VARIOUS CLEFS, SCALES, AND KEYS IS ADOPTED;

AND

A VARIETY OF INFORMATION NECESSARY FOR THE MUSICAL STUDENT IS GIVEN.

WITH

AN APPENDIX ON THE THEORY OF SOUND.

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INTRODUCTION.

THIS little work is intended for the use of those who, fond of music, and desirous of learning enough of that delightful art to enable them to solace their own hours of retirement, and to afford amusement to their friends, have neither the money to procure nor the time to study expensive books on the subject. There is no instruction-book, of a *moderate price*, which contains so clear and simple a development of the theory of music as will be found in these pages. In that circumstance lies their claim to public patronage, for the writer makes no pretence of having made discoveries in the art of teaching, or of having found out a royal road to the acquirement of the practice of music. All that this *brochure* contains *may* be found in the pages of existing writers on the theory and practice of music; but the arrangement, and the condensation of the matter scattered over many volumes, were the labour of many months; and in several instances, where the plan has been tried of pursuing the course of study here indicated, it has been most successful in giving to the pupils a facility in understanding and explaining the nature of the scales, keys, and modes, that has made them better *theorists* than others who had been for years under the first masters.

The pupil, commencing the task of study with the first chapter, must not pass from that to the second until he

has made himself completely master of its contents. Each chapter is a step which should be attained—and the foot firmly placed upon it—before it is attempted to reach another. Before the second chapter is entered upon, for instance, the pupil should be able to answer any question which may be asked him upon the first, and have the table of the value of the notes completely fixed in his memory. So with the second, before he proceeds with the third.

The catechetical method has not been adopted; the writer thinks it too mechanical, and that it conduces to give only a superficial knowledge of most branches to which it is applied. It is far better to let a pupil study a continuous, unbroken page (unbroken by questions and answers is meant), and then to give his replies to queries in *his own* language, than to teach him to do so in the language of another. The first method supplies him with *ideas*, the latter merely with *words*; by the one he is *compelled* to *employ* his *understanding*, the other too frequently only *exercises* the *memory*. In the writer's experience with his own children, the course he recommends has always been found the most successful.

With these few introductory remarks he submits his little work to an indulgent public.

THEORY OF MUSIC.

CHAPTER I.

How to learn Music properly—The Notes of the Natural Scale—The Octave—The Staff—The Names and Durations of the Musical Notes, and their corresponding Rests.

To learn Music properly it is necessary, as with every other science, to begin with first principles—and to proceed, by steps, till we have acquired a perfect knowledge of the theory, of which we must then make a practical use.

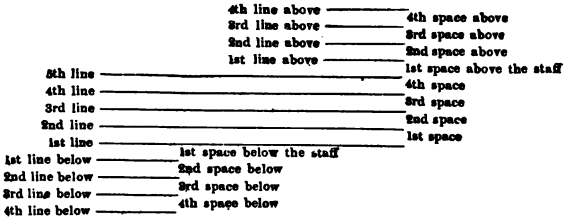
All the various combinations in music consist in the arrangement and disposition of the notes of the scale, seven in number; and these are found to be sufficient to distinguish the different sounds which can be uttered by a musical voice or drawn from instruments.

These notes are designated by the letters C, D, E, F, G, A, B. This is called the natural scale, because it comprises the sounds through which the voice of a person who has a musical ear naturally rises. The eighth sound, or octave, is again called C, and the same succession of letters is repeated. The human voice comprises, generally, about two octaves; instruments have a much wider range: but, after singing or playing the first seven notes, we find the next series perfectly similar, and so on, to the full extent of the series.

Although the notes are named after the letters of the alphabet, they are not now distinguished by them. In writing music, which is called notation, a staff of five lines is made use of, the notes being placed on the lines or within the spaces; short lines above and below the staff are used for those notes which cannot be comprised in it—these are called leger lines. The note itself is a small open circle, ○, or a close one, ●, and the particular sound it is intended to represent is pointed out by its place upon the staff, which shows the *intonation*. We

ascertain the *duration* of the notes by adding a tail with one, two, or more loops, as the time which the note should occupy in singing or playing is diminished.

There are five lines and four spaces in the staff, each of which is termed a degree; and they are counted upwards, from the lowest to the highest, as is shown in the following diagram, which also includes the leger lines:—



Each note has a corresponding rest, to point out any variation of sound which the melody or harmony requires. The subjoined diagram shows the various notes and the rests, the *semibreve* being taken as the unit of the duration of sound:—

The following description of the rests should be committed to memory:—

A semibreve rest is a small dash under a line; a minim rest a small dash above a line; a crotchet rest has a stroke to the right; a quaver rest one stroke, a semiquaver two, a demisemiquaver three, and a double demisemiquaver four strokes to the left.

The notes are of the same length or duration, whatever degree they occupy on the staff. There are seven different degrees of duration: the semibreve is equal to two minims, a minim to two crotchets, a crotchet to two quavers, a quaver to two semiquavers, a semiquaver to two demisemiquavers, a demisemiquaver to two double

demisemiquavers; the rests are of the same proportionate lengths; and, to understand the value of each note properly and readily, the following tables should be committed to memory:—

1. A semibreve is equal to two minims, four crotchets, eight quavers, sixteen semiquavers, thirty-two demisemiquavers, or sixty-four double demisemiquavers.
2. A minim is equal to two crotchets, four quavers, eight semiquavers, sixteen demisemiquavers, or thirty-four double demisemiquavers.
3. A crotchet is equal to two quavers, four semiquavers, eight demisemiquavers, or sixteen double demisemiquavers.
4. A quaver is equal to two semiquavers, four demisemiquavers, or eight double demisemiquavers.
5. A semiquaver is equal to two demisemiquavers, or four double demisemiquavers.
6. A demisemiquaver is equal to two double demisemiquavers.

The names of the notes and their relative durations are easily acquired. Their position on the lines and spaces, to denote the different sounds, is much more complex. It is indicated by certain marks called cliffs, or clefs, the nature of which must now be described.

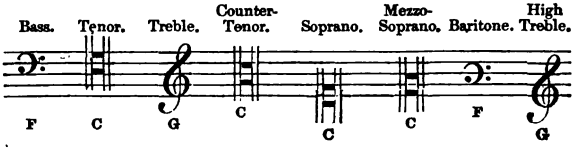
CHAPTER II.

Of the various Clefs in Music—The Clefs marks of Intonation—The Bass, Tenor, and Treble Clefs principally in use—Other Clefs necessary—The Counter-tenor, Soprano, Mezzo-soprano, Baritone, and high Treble Clefs.

THE notes explained in the preceding chapter are called marks of *duration*, they point out TIME; we now come to the marks of *intonation*, which distinguish SOUND. These are called clefs; and, placed at the beginning of the staff, they indicate the degrees of elevation or depression which the notes in that staff attain. Those principally in use are *three*, viz.: the F, or bass clef; the C, or tenor clef; and the G, or treble clef. But as there are more than three varieties in the human voice, it has been found necessary to introduce a greater number of clefs, which are distinguished by the names of the counter-tenor, the

tenor, the soprano, the mezzo-soprano, the baritone, and high treble clefs. The clefs are known by the line of the staff on which they are placed, as there are only three varieties in form, *i.e.* the following, which represent the letters F, C, and G:— F, or bass; C, or tenor; G, or treble. The treble clef is placed on the second line of the staff, and all the notes on that line are called G, those in the space above A, in the space below F, and so on. The tenor is placed on the fourth line of the staff, and all the notes on that line are called C, those in the space above D, those in the space below B, &c. The bass is also placed on the fourth line, and then all the notes on that line are called F, those in the space below E, in that above G, &c. The counter-tenor clef is placed on the third line, the soprano on the first line, the mezzo-soprano on the second line: these are all C clefs, and the notes in the staff take their pitch accordingly. The baritone is an F clef, placed on the third line; and the high treble, which is only used in old French music, a G clef, placed on the first line, when the notes take the same names as in the bass clef.

The following diagram shows all the different clefs, and their position on the staff:—



In printed music, for popular use, the clefs most generally used are the bass and the treble; for an accurate knowledge of the science it is necessary, however, that the others should be thoroughly understood, as it is impossible to read music *in score*—that is, a piece of music composed for several voices or instruments—without a knowledge of their various natures and properties. These will be further explained in the next and a subsequent chapter.

CHAPTER III.

The Gamut—The Names of the Lines and Spaces—How the Notes are designated on the Lines and Spaces in the Bass and Treble Clefs—The Bass Staff, the Treble Staff—How the Notes on successive Octaves are designated in order to distinguish them.

THE table or scale of notes is called the Gamut, from the Greek letter Gamma, which used to be placed on the first line of the staff. It is essential that this scale should be perfectly learned in the bass and treble clefs; and the first step to recollect is, that the lines and spaces in the staff are numbered and called, 1st line, 1st space; 2nd line, 2nd space; and so on, to the 5th line. The lines and spaces above the staff are called, 1st space above, 1st line above; 2nd space above, 2nd line above, &c.: and the lines and spaces below the staff are called, 1st space below, 1st line below; 2nd space below, 2nd line below, &c. (as will be seen in the diagram at page 4). Thus, taking the treble clef, the note on the first line is E, in the first space F; on the second line G, in the second space A; on the third line B, in the third space C; on the fourth line D, in the fourth space E; on the fifth line F; in the first space above, G; on the first line above, A. In the bass, the note on the first line is G, in the first space A; on the second line B, in the second space C; on the third line D, in the third space E; on the fourth line F, in the fourth space G; on the fifth line A; in the first space above, B; on the first line above, C, &c. Recollecting this, the following diagrams, which contain the notes, in the bass and treble staffs, will be easily understood:—

TREBLE.

Bass.

The above diagrams represent the great scale; they will be found to contain forty-four notes; but as the four highest notes in the bass, G, A, B, C, and the four lowest in the treble, are in unison, there are, in truth, only forty distinct sounds represented. After every seven letters, it will be seen that the same series is repeated; and the better to distinguish the notes, they are designated again as follow: the first eight notes in the bass, from F to F, are called double notes; the G on the first line is called G gamut; the next five notes are called A, B, C, D, E above G gamut; the F on the fourth line, F clef note; and the remainder, G, A, B, C, above the F clef note. The notes below G, on the second line in the treble staff, are called G, A, B, &c. below G clef note; the G on the second line is called G clef note; from A in the second space to F on the fifth line, are A, B, &c. above the G clef note; from G in the first space above to G on the fourth line above, the notes are called in *alt;* beyond that, in *altissimo.*

We shall give the notes in the remaining clefs when we come to speak of the various kinds of voices in a subsequent chapter.

CHAPTER IV.

Of the Scales—Explanation of the term "Scale"—The Natural or Diatonic Scale—Variation of the Scale by Sharps and Flats—The Chromatic Scale—The Enharmonic Scale—Intervals, how numbered and named.

The term "scale" is given to a succession of eight notes, ascending or descending. The natural scale, commencing on C, is as follows:—C, D, E, F, G, A, B; the second

C completes the octave. The intervals, or differences, between the pitch of these sounds varies: thus, the difference between C and D, and D and E, is the same; but there is a less perceptible difference between E and F. Then the interval or difference between F and G, G and A, A and B, is the same as between C and D; but between B and the second C the interval is again reduced to that which exists between E and F. These intervals are called tones and semi-tones; and the natural scale contains five tones and two semi-tones, arranged as follows:—

C D E F G A B C
t. t. s. t. t. t. s.

The scale thus arranged is called the Diatonic scale; and M. Fétis says that "the semi-tone is the smallest interval that a European can appreciate with exactness." The natural semi-tones are from E to F, and from B to C.

A constant succession of notes, arranged in the above order, would produce a monotonous effect. To obviate this—to admit of a variety in the construction of airs or other compositions—intermediate sounds, called sharps (distinguished by this mark ♯) and flats (to which this ♭ mark is affixed), are introduced in composition; and thus a pleasing variety is obtained, whilst the order of the tones and semi-tones is observed. For example, take the scale beginning with G. It will stand thus in the natural order:—

G A B C D E F G
t. t. s. t. t. s. t.

But this would be an incorrect modulation, as the diatonic or major scale always requires a succession of two tones, a semi-tone, three tones, and a semi-tone. To remedy the error, a sharp (which raises a note a semi-tone, whilst a flat depresses it in the same degree) is placed to F, by which the interval between E and F is raised to a tone, and that between F and G depressed to a semi-tone. Whatever note the scale begins upon, the order of tones and semi-tones must be preserved by the introduction of

sharps or flats. The effect of flats may be seen in the following example :—

B C D E F G A B
s. t. t. s. t. t. t.

Here flats affixed to B and E, by depressing those two notes, have the effect of restoring the proper arrangement. The B, by being depressed, increases the interval between that note and C to a tone; and the depression of E decreases the interval between that note and D, and increases the interval between E and F, making the former a semi-tone and the latter a tone, as the true construction of the scale requires.

The sharps and flats, it must be remembered, are not affixed to each note, but placed at the beginning of the staff, on the line or in the space occupied by the note affected by them; and that note throughout the piece is played or sung sharp or flat, unless it is counteracted by this mark ♮, called a natural, being placed before it; it is then restored to the natural tone. Occasional flats and sharps are also used, but they only affect the notes in the bar in which they appear.

Sometimes double sharps, marked ×, and double flats, marked 𝄫, are used. As the sharps and flats raise or depress a note half a tone, the double sharps or flats raise or depress it a whole tone.

Another scale, called the *Chromatic*, may be formed, by placing between two notes a third note, at the distance of a semi-tone from each, making twelve consecutive semi-tones in the octave. Thus C, C sharp; D, D sharp; E, F, F sharp; G, G sharp; A, A sharp; B, C. The same scale may be formed with flats as follows: C, D flat; D, E flat; E, F, G flat; G, A flat; A, B flat; B, C. This scale generally ascends by sharps, and descends by flats.

There is a third scale, called the *Enharmonic*, which consists of intervals smaller than the semi-tones. "It is formed," says Mr. Gwilt, "by uniting the ascending with the descending scale of the chromatic genus, by the use of an interval created between the sharpened note of the preceding and the flattened note of the succeeding one. These, though not exactly equal to half a semi-tone, are,

from their approximation to that quantity, called dieses, or quarter-tones." Thus, from G to A being a tone, if G sharp and A flat be taken instead of the natural notes, the difference between these extremes of the two chromatic semi-tones forms the *enharmonic*, or quarter-tone.

The intervals of the scale are numbered: the interval between the key-note and the next is called second; between the key-note and the next to the second, third; and the other intervals are fourth, fifth, sixth, seventh, and the octave, or eighth.

CHAPTER V.

Of the Keys and Modes.—Explanation of the term Keys—Modes—Explanation of the Major and Minor Modes—Major and Minor Thirds to each Note—How the Key-Note is to be known—Major and Minor Keys, with their Sharps and Flats—Order of Flats and Sharps—Disposition of the Semi-tones in the Major and Minor Modes—Names of the Notes in the Key—Leading Notes—Relative Keys.

THE term *key* means the scale in which a piece of music is composed, the first note of which is called the *tonic*, or key-note. By *mode* we mean the disposition of the tones and semi-tones forming the scale, and ascending or descending from the key-note. There are two modes, the major and the minor; and two natural keys, C major and A minor; all other keys are transpositions of these by the use of sharps and flats, as explained in Chapter IV. The term major is applied to modes in which the third note is four semi-tones above the key-note; intervals comprising four semi-tones are also called major intervals. Minor signifies less, and it is applied to those keys where the third note is only three semi-tones removed from the tonic. The natural key of C is a major key, because from C to E the third note is four semi-tones; whilst the natural key of A is minor, from A to C, its third, being only three semi-tones: E is called the major third of C; C the minor third of A.

It will be desirable that the major and minor thirds of all the notes should be fixed in the memory.

The *Major Third*—of A is C sharp, B is D sharp, C is E, D is F sharp, E is G sharp, F is A, G is B.

The *Minor Third*—of A is C, B is D, C is E flat, D is F, E is G, F is A flat, G is B flat.

The key-note, when sharps are at the beginning of the line, is one note above the last sharp; when flats are at the beginning, the key-note is three notes below the last flat. The sharps or flats placed at the beginning of the line are called "the signature."

There are thirty keys, viz. fifteen in the major mode, and fifteen in the minor mode: the rule for constructing them is, to preserve the proper proportion and order of intervals; and the following diagrams show the flats and sharps required to do this correctly.

MAJOR KEYS.

WITH SHARPS.

Key of		
C major . .	no sharp.	
G major . .	one,	F.
D major . .	two,	F, C.
A major . .	three,	F, C, G.
E major . .	four,	F, C, G, D.
B major . .	five,	F, C, G, D. A.
F sharp major,	six,	F, C, G, D, A, E.
G sharp major,	seven,	F, C, G, D, A, E, F.

WITH FLATS.

Key of		
C major . .	no flat.	
F major . .	one,	B.
B flat major .	two,	B, E.
E flat major .	three	B, E, A.
A flat major .	four,	B, E, A, D.
D flat major .	five,	B, E, A, D, G.
G flat major .	six,	B, E, A, D, G, C.
C flat major .	seven,	B, E, A, D, G, C, F.

MINOR KEYS.

WITH SHARPS.

Key of		
A minor	. . no sharp.	
E minor	. . one,	F.
B minor	. . two,	F, C.
F sharp minor,	three,	F, C, G.
C sharp minor,	four,	F, C, G, D.
G sharp minor,	five,	F, C, G, D, A.
D sharp minor,	six,	F, C, G, D, A, E.
A sharp minor,	seven,	F, C, G, D, A, E, B.

WITH FLATS.

Key of		
A minor	. . no flat.	
D minor	. . one,	B.
G minor	. . two,	B, E.
C minor	. . three,	B, E, A.
F minor	. . four,	B, E, A, D.
B flat minor	. five,	B, E, A, D, G.
E flat minor	. six,	B, E, A, D, G, C.
A flat minor	. seven,	B, E, A, D, G, C, F.

There is a regular order of flats and sharps, which are always arranged at the beginning of the staff as follows:—*Sharps:* 1, F sharp; 2, C sharp; 3, G sharp; 4, D sharp; 5, A sharp; 6, E sharp; 7, B sharp. *Flats:* 1, B flat; 2, E flat; 3, A flat; 4, D flat; 5, G flat; 6, C flat; 7, F flat.

It should be observed, that in the major keys the semi-tones are between the third and the fourth note, and from the seventh to the eighth; and that they are the same ascending and descending. In the minor scale, ascending, the semi-tones are from the second to the third, and from the seventh to the eighth note; in descending, they are from the sixth to the fifth, and from the third to the second.

Each note in the key has a specific name: the first is called the *key-note*, or *tonic;* the second, *supertonic;* the third, *mediant;* the fourth, *subdominant;* the fifth, *dominant;* the sixth, *submediant;* the seventh, *subtonic;* the eighth the octave, as regards the lower sounds; but as respects the next progressing series it is also called the tonic. The *tonic*, *dominant*, and *subdominant*, are the radical parts of every scale and all melodies are derived from them.

Every ascending scale has a leading note, which is a sharp seventh, and is only a semi-tone from the tonic: it is very important to be known. The following are the leading notes in the different keys:—

Major Keys, with Sharps.	Leading Notes.
G	F sharp.
D	C sharp.
A	G sharp
E	D sharp.
B	A sharp.
F sharp	E sharp.
C sharp	B sharp.

Major Keys, with Flats.	Leading Notes.
F	E natural.
B flat	A natural.
E flat	D natural.
A flat	G natural.
D flat	C natural.
G flat	F natural.
C flat	B flat.

Minor Keys, with Sharps.	Leading Notes.
A	G sharp.
E	D sharp.
B	A sharp.
F sharp	E sharp.
C sharp	B sharp.
G sharp	F double sharp.
D sharp	C double sharp.
A sharp	G double sharp.

Minor Keys, with Flats.	Leading Notes.
D	C sharp.
G	F sharp.
E	B natural.
F	E natural.
B flat	A natural.
E flat	D natural.
A flat	G natural.

Every minor key is formed on the sixth note of a major key, and is therefore said to be relative to the major on which it is so formed, having the same number of sharps or flats, *ex gra.*:

The relative of	G major	is E minor.
,,	D major	B minor.
,,	A major	F sharp minor.
,,	E major	C sharp minor.
,,	B major	G sharp minor.
,,	F sharp major	D sharp minor.
,,	C sharp major	A sharp minor.
,,	F major	D minor.
,,	B flat major	G minor.
,,	E flat major	C minor.
,,	A flat major	F minor.
,,	D flat major	B flat minor.
,,	G flat major	E flat minor.
,,	C flat major	A flat minor.

Note.—The learner should provide himself with a blank music-book, and accustom himself to the keys by writing the notes of each of them in their proper places on the staff.

CHAPTER VI.

Of Time—Definition of Time—Bars—Divisions of Time—Explanation of Common, Triple, Simple, and Compound Time—The Marks and Figures by which the different kinds of Time are distinguished—How to distinguish Simple from Compound Time—Dotted and Double-dotted Notes—Licences as to Time—Counting Time—Beating Time—The Use of Counting and Beating Time—Double Bars—Accent—Emphasis.

TIME, in music, is the measure of sounds, with regard to their continuance or duration. In every piece of music the staff is divided by a straight black line drawn across it: this is called a bar; and its use is to divide the composition into equal portions of time.

There are two principal divisions of time—*common* and *triple*,—and these, again, are divided into *simple* and *compound*.

Common or even time has an equal number of parts in a bar, as 2, 4, 6, or 8. Triple or uneven time has an odd number of parts, as 3 or 9. Simple common time has four crotchets, or their value (*i.e.* as many notes, or notes and rests, as can be played in the time of four crotchets), in a bar, being equal to a semibreve; or two crotchets, or their value, being equal to a minim. Compound common time contains a semibreve and a portion of another semibreve; six crotchets, or their value, in a bar is compound common time.

Simple triple time contains three minims, three crotchets, or three quavers in a bar. Compound triple time contains nine quavers or nine crotchets in a bar.

Signs and figures are used to distinguish these various kinds of time. Common time is marked with a character like the letter C; sometimes it has a stroke drawn across it ₵, and is then called *alla-breve*, because it was formerly written with one breve in a bar. The other descriptions of time are marked by figures; those most commonly used—and they are placed, like the mark for common time, *after* the clef, at the beginning of the staff—are, $\frac{2}{4}$, $\frac{3}{2}$, $\frac{3}{4}$, $\frac{3}{8}$, $\frac{6}{4}$, $\frac{6}{8}$, $\frac{9}{8}$, $\frac{9}{16}$, $\frac{12}{8}$. Of these figures the lower

one shows the number of parts into which the semibreve, or unit in music, is divided; the upper one points out how many of those parts are contained in a bar. Thus, the above figures, respectively placed at the commencement of a staff, would point out that the bar contained two crotchets, three minims, three crotchets, three quavers, six crotchets, six quavers, nine quavers, nine semiquavers, or twelve quavers; there being four crotchets, two minims, eight quavers, or sixteen semiquavers in a semibreve. Every bar must contain an equivalent (in notes or rests of some thing or other) to the number indicated in the time-mark placed at the beginning of the staff. Thus in $\frac{2}{4}$ time, which indicates two crotchets in a bar, a minim; two quavers and a crotchet; four quavers; two quavers and four demisemiquavers; or a crotchet, a quaver, and a quaver rest, would make up the requisite measure of time. By an easy rule simple may be distinguished from compound time:—If the upper figure is less than 6, it is simple; if 6, or upwards, it is compound.

Sometimes it is found necessary to lengthen a note, which is done by placing a dot (.) after it. This lengthens the note one-half; a dotted minim being equal to three crotchets, a dotted crotchet to three quavers, a dotted quaver to three semiquavers, a dotted semiquaver to three demisemiquavers, and a dotted demisemiquaver to three double demisemiquavers.

It will be useful to learn the following tables:—

A dotted semibreve is equal to three minims, six crotchets, twelve quavers, twenty-four semiquavers, forty-eight demisemiquavers, or ninety-six double demisemiquavers.

A dotted minim is equal to three crotchets, six quavers, twelve semiquavers, twenty-four demisemiquavers, forty-eight double demisemiquavers.

A dotted crotchet is equal to three quavers, six semiquavers, twelve demisemiquavers, twenty-four double demisemiquavers.

A dotted quaver is equal to three semiquavers, six demisemiquavers, twelve double demisemiquavers.

A dotted semiquaver is equal to three demisemiquavers, six double demisemiquavers.

A dotted demisemiquaver is equal to three double demisemiquavers.

The double dot (..) adds to any note a length equal to

three-quarters of that note; thus a double-dotted crotchet is equal to three quavers and one semiquaver.

Let the learner commit the following to memory:—

A double-dotted semibreve is equal to a semibreve, a minim, and a crotchet.

A double-dotted minim is equal to a minim, a crotchet, and a quaver.

A double-dotted crotchet is equal to a crotchet, a quaver, and a semiquaver.

A double-dotted quaver is equal to a quaver, a semiquaver, and a demisemiquaver.

A double-dotted semiquaver is equal to a semiquaver, a demisemiquaver, and a double demisemiquaver.

A dotted or double-dotted rest is increased in duration the same as the corresponding notes.

Composers use certain licences, also, with respect to time, of which the following are the principal:—

Three notes united by a curved line drawn over them, which line includes the figure 3, are to be played or sung in the time of two notes. Five notes so tied, and having the figure 5 over them, are to be performed in the time of four; six notes, with the figure 6, in the time of five; and nine notes, with the figure 9, in the time of eight.

Time is both counted and beat in music. In common time four crotchets, or, in slow movements, eight quavers, are counted in a bar; thus, 1, 2, 3, 4; or, 1, 2, 3, 4, 5, 6, 7, 8. In common time, marked $\frac{2}{4}$, two crotchets, or, in slow movements, four quavers, are counted. In compound common time, marked $\frac{6}{8}$, two dotted crotchets, or, in slow movements, twice three quavers, are counted. In triple time, marked $\frac{3}{4}$, generally three crotchets are counted in a bar, or, in slow movements, six quavers. In triple time, marked $\frac{3}{8}$, three quavers are counted.

Beating time has the same effect as counting. In common time the hand or foot should fall when the first note is struck—1, 2, should be counted; it should rise at 3, be kept up while that number and 4 are counted; and then fall again. If there are only two crotchets in a bar, the hand or foot falls at the first, and rises at the second; 1 being counted while it is down, and 1 while it is up.

In triple time, of three crotchets in a bar, the fall is on the first crotchet, and the rise on the third; 1, 2, being

counted while the hand or foot is down, and 3 when it rises again.

In $\frac{6}{8}$ time the fall is on the first quaver, the rise on the fourth: 1, 2, 3, is counted while down; 4, 5, 6, while up.

In $\frac{9}{8}$ time the fall and rise are on the first and seventh quavers; counting respectively 1, 2, 3, 4, 5, 6; and 7, 8, 9.

In $\frac{12}{8}$ time (double compound common time, as it is technically termed) the hand or foot falls at the first quaver: 1, 2, 3, 4, 5, 6, are counted, and it rises; 7, 8, 9, 10, 11, 12, are counted, and it falls.

The use of beating and counting time is to procure a simultaneous performance of a piece of music in several parts by the different performers. The moment of commencing one bar is the moment for the commencement of the corresponding bar in the accompanying part of the harmony; and the performers, being guided by the same beating and counting, all play together, and the most perfect agreement and consent will characterize their performance.

The space between one downward mark across the staff and another, which we have designated "a bar," is by some writers called "a measure"—the term bar by them being confined to the dividing mark; but by far the most usual mode is to apply the term as we have done.

Two straight lines across the staff, or a double bar, mark the end of a part, or a piece of music: if dots are placed on each side of this double line, it signifies that the part should be repeated. If they are placed only on one side, then the part on the side dotted only is to be repeated.

The division of pieces of music into bars is also useful for pointing out on which note the *accent* should be laid, or which should be sung or played with a little more force than the rest. In common time, of four crotchets in a bar, the first and third crotchets are accented; when the bar consists of eight quavers, the accent is on the first, third, fifth, and seventh. In $\frac{2}{4}$ time the accent is on the first crotchet; but if the bar contains four quavers, then it is on the first and third.

In triple time, the accent is on the first note in $\frac{3}{8}$ time; in $\frac{3}{4}$ time it is on the first, third, and fifth quavers; in $\frac{3}{8}$ time, on the first and fourth quavers.

Occasionally a stress or force is given to a note contrary to the general rules; this is called emphasis, and whenever it occurs the note to be so distinguished is pointed out by having the letters *sf* or *fz* placed under or over it. Sometimes the Italian word *Rinforzando* or *Sforzato* is used.

CHAPTER VII.

Of Singing—Varieties of the Human Voice—Correspondence of Male and Female Voices—*Voce di Petto* and *Voce di Testa*—Compass and Qualities of the different Voices—Diagrams of the Soprano, Mezzo-soprano, Contralto, Tenor, and Baritone Clefs.

THERE is no instrument which possesses so much variety as the human voice, or which can discourse such exquisite music. A good voice alone, however, will not constitute a good singer. That natural qualification no degree of acquired skill can supply; yet, as M. Fétis observes, "One who possesses the art of regulating his voice with firmness, and understands the management of its powers, sometimes produces a better effect with an inferior voice, than an ignorant singer can do with a fine one."

Voices, like instruments, are of various kinds. The primary division is into male and female, and it will be found that the voices of the latter are more acute than those of men, whilst those of boys are sometimes shriller, and ascend higher in the scale than even those of women. The next division of voices is regulated by their pitch. The varieties of the male voice are—the *treble*, which is only found in boys, the *counter-tenor*, *tenor*, *baritone*, and *bass*. The female voice has three varieties—the *soprano*, *mezzo-soprano*, and *contralto*.

The compass and quality of the principal divisions of the male and female voices have a striking correspondence with each other—the tenor with the soprano, the baritone with the mezzo-soprano, the bass with the contralto; but the male voice will always be found to be an octave

lower than the corresponding class in the female. Both in males and females each voice has two distinct registers, or characters, viz., the *voce di petto*, or chest-voice, which is the natural tone, and the *voce di testa*, or head-voice, which is also called the *falsetto*, though some musicians say improperly, contending that the term should only be applied to "a feigned voice, as when a male singer mimics the tones of a soprano." The blending the falsetto and the natural voice, so as they become completely assimilated, gliding, as it were, imperceptibly the one into the other, is the great perfection of vocal art.

The *counter-tenor* is the highest, or most acute, male adult voice, but it is now very seldom met with, except in the *falsetto;* and the music formerly allotted to male singers with this voice is frequently given to female contraltos. Its natural compass is from F, bass clef note, to G above the treble staff. The *tenor* is next in pitch. It is the most flexible and brilliant of male voices, the range being from C below the bass clef to G, the treble clef note, or A—about fifteen notes. Some tenors in their falsetto ascend to E.

The *baritone* is the medium species of male voice. It extends from A or B below the clef note, to G or A above it; its range being from thirteen to fifteen notes in the natural voice. It is not so clear or brilliant as the tenor, but has more volume and force; and singers with this voice are capable of imparting great variety of expression and flexibility to their vocal execution.

The bass is the most grave male voice; it exceeds the tenor and baritone in power and majesty, but wants their grace and flexibility. It extends from G below to G or A above the clef note, having about the same range as the baritone.

The highest voice in females is the *soprano*, and it is the most acute voice amongst adults. It ranges from fifteen to twenty notes, *i.e.*, from G in the bass to E in *altissimo*, though this compass is not often attained. Billington, who had the most brilliant and extensive voice, probably, that any singer ever possessed, could reach G in *altissimo;* Catalani's scale was from G in the bass to E; Signora Corri could reach F in *altissimo*.

The *mezzo-soprano* and *contralto* are the medium and

lowest species of the female voice. Their qualities answer to the baritone and the bass in males; and they extend respectively from A below to E or D above the clef note, and from G to C or D. The *mezzo-soprano* has more pathos and expression than the *soprano*, and the *contralto* partakes very much of these qualities.

It is this variety of voices which renders necessary so many different clefs; and it must be remembered that every note placed upon the clef-line takes the name of that clef, and all the others are named accordingly. We have already given diagrams of the treble and bass; we now give those of the remaining clefs:—

The Soprano Clef.

The *treble* clef is chiefly employed in England in the notation of music for this voice; but in Italy and Germany the composers generally use the distinctive clef of C.

The Mezzo-soprano Clef.

The Contralto, which is also the Counter-tenor Clef.

The *treble* clef is frequently used in English notation for the *mezzo-soprano* and *contralto* clefs.

The Tenor Clef.

The treble clef is often employed in the notation of songs, instead of the tenor: the notes must then be sung an octave lower than they are written.

The Baritone Clef.

This clef should be noticed in order that old and foreign musical notation may be understood; but the bass clef is now generally used for the baritone in part music; and the treble in songs, which have to be sung an octave lower than they are written.

Whatever class of voice the learner possesses, he should make himself perfectly familiar with the notation of its proper clef, as well as with those of the treble and bass. He can learn the others at his leisure.

Latin syllables are generally applied to the notes in teaching singing, instead of the letters A, B, &c., and these the learner must fix in his memory. These syllables, and their corresponding notes, are as follows:—

C	D	E	F	G	A	B	C
do	re	mi	fa	sol	la	si	do.

They are pronounced *Doe, ra, me, far, sole, lar, see.*

CHAPTER VIII.

Of Singing (*continued*)—The Regulation of the Voice — Tosi's Rules for Masters—Respiration—Practice of the Scales—*Sol-fa*-ing — Of Uniting the Registers — Of the Portamento; the Appoggiatura; the Turn; the Shake—Vibrations; Divisions—Anecdote of Porpora and Caffarelli.

The proper regulation of the voice, so as to deliver it with propriety and effect, is one of the most important, perhaps the most important point, to be attended to in singing. "The delivery of the voice," says M. Fétis ('Music Explained'), "consists in adopting, as perfectly as possible, the motions of respiration to the emission of sound, so as to bring out the power of the latter, as much as the quality of the organ and the conformation of the chest will admit, without carrying it to that degree of effort which makes the sound degenerate into a cry." Much judicious practice, under the superintendence of a good master, is necessary to form the voice, and to enable the singer to bring it pure from the chest. M. Tosi, an Italian writer on music, gives the following directions to singing-masters, as to the methods to be pursued when training the pupil. We quote from a translation in an excellent musical work now extinct, 'The Quarterly Musical Magazine and Review:'—

"The master should always make the scholar sing standing, that the voice may have all its organization free.

"Let him (the scholar) take care whilst he sings, that he gets a graceful posture, and makes an agreeable appearance.

"Let him rigorously correct all grimaces and tricks of the head, of the body, and particularly of the mouth, which ought to be composed in a manner (if the sense of the words permit it) rather inclined to a smile than too much gravity.

"Let him attend with great care to the voice of the scholar, which, whether it be *di petto* or *di testa*, should always come forth neat and clear, without passing through the nose or being choked in the throat, which are two of the most horrible defects in a singer, and past all remedy if once grown into a habit."

The first thing to be attended to in forming the voice is, to enable the pupil to respire properly. Respiration consists of the alternate inhaling and exhaling of air, by which the lungs and the chest are dilated and contracted. The lungs dilate to receive the air; they contract to expel it; and whilst in singing the air should be copiously inhaled before beginning a strain, it should be emitted or exhaled gradually, and with great regularity and smoothness. On the proper management of the functions of respiration the quality of the voice eminently depends; and its emission should be directly from the chest. The throat must be free to allow the voice a clear passage, or it will have a guttural sound; if forced too much towards the head, it will become nasal.

The diatonic scale should be practised on the vowel A, in the first instance, which must be pronounced as it is in "father." The notes should be sung ascending and descending; and there cannot be a better direction to the pupil than that given by the late Mr. Baron, of Norwich, in his 'Elements of Vocal Science' (p. 20):—"Each note," he says, "should be begun as soft as possible, gradually swelled to the utmost extent of the volume at the middle of its duration, and then as gradually diminished to the softest at its conclusion." This sustaining a note is called by the Italians "*messa di voce*," or putting forth the voice. Care should be taken that the *forte* should fall in the middle period of the duration of the sound; and the notes should be all carefully learned in this manner, and the pupil's ear should be led accurately to distinguish between them before he proceeds a step further. The chromatic scale should be practised in the same manner as the diatonic.

Pure and graceful and varied expression depends upon this power of swelling and diminishing the notes; and the practice of the scales also produces a good and uniform tone. The singer should never wholly lay it aside.

The next step is the practice of the scale to the syllables *do*, *re*, *mi*, &c.; which is called *sol-fa*-ing. When this has been proceeded with, so as to make the pupil familiar not only with the note, but with its corresponding syllable and its proper sound, intervals should be practised; and these, taken at first in the lowest degree, should extend by

fourths, fifths, &c., to the furthest intervals allowable in composition. This will give the power of rising from a low note to a high one, or of sinking from the latter to the former without effort; but with the same ease as notes can be taken that follow successively in the scale.

The pupil should be taught the best mode of uniting the different registers (the chest and head voices) in his voice; to blend several notes together in one continuous emission of the breath; the *portamento*, or gliding of the voice; and the graces of the *appoggiatura*, the *turn*, and the *shake*, before he attempts songs; or, at all events, before any other than the most simple melody is committed to him. To unite the head and chest voices, he should accustom himself to pass, on the *same note*, from the chest to the head voice, and *vice versâ;* at first slowly, and then gradually accelerating the movement, till the passage can be accomplished on a bar of semiquavers in quick time. "In passing from the chest to the head voice, a tenor singer," says Mr. Hamilton, "must subdue the chest notes at their junction with those of the head-voice, because the former have naturally more power than the latter; but in a soprano voice the reverse must take place, as the notes of the head-voice are the loudest."

To blend several notes in one emission of the breath, requires practice under the instruction of a master; it cannot be properly acquired without the latter. Each note must have a distinct articulation, and this must be imparted by means of gentle impulses of the throat.

The *portamento* is used only in slow movements: it is nearly allied to the *messa di voce;* only the latter is a swelling and diminishing on one note, whilst the portamento is the swelling from a low note to a high one, or the descending from an acute sound to one more or less grave. It is effected by anticipating the intonation of the second note, by which means the passage from one to the other is made less abrupt, and the transition becomes a graceful and beautiful movement.

The *appoggiatura* is an ornamental or grace note inserted between two others at some distance, for the purpose of enabling the singer to glide smoothly from one to the other. The term is derived from the Italian *appoggiare*, "to lean upon;" the grace note serving as a support for

the voice in passing the interval from one note to another, by which its abruptness is diminished. The duration of the *appoggiatura* should be half the time of the note to which it is attached. A *double appoggiatura* is sometimes used, which gives elegance and intensity to passages of feeling or pathos; and additional liveliness to airy and animated strains.

The *turn* is either direct or inverted. The direct turn connects, enlivens, and gives smoothness to intervals and passages; the indirect turn is principally devoted to passages of sad and tender emotion. In the former the voice descends from an interval above to an interval below the principal note,—in the latter it ascends from the interval below to the interval above. It requires three notes to constitute a turn; which include either a minor or a diminished third. Thus a direct turn on C would be D, C, B; on E—F, E, sharp D. The inverted turn on C would be B, C, D; on E—sharp D, E, F. In a turn, the note below the principal note must always be at the distance of a semi-tone from it.

The *shake*, whilst it is the most essential and the most beautiful of all ornaments, is the most difficult to acquire. "It consists in the frequent, rapid, and equal execution of two notes in succession, one of which may be a whole tone or a semi-tone above the principal note, according to the position of the shake in the scale." There is a difference of opinion, amongst the most eminent theorists, as to whether the shake should commence from the upper or lower note: the weight of authority is, however, in favour of the former.

Vibrations, or the quick repetition of an emphasis upon the same note, and *divisions*, or passages of quick notes, may either be learned before or after the pupil has been taught to apply notes to words. The execution of divisions approximates closely to the process of blending several notes in one emission of the breath.

Too much time can scarcely be given to the practice of the scales and graces, however disagreeable it may be: and the pupil may depend upon it that the hours thus spent are most valuably employed. Porpora, an illustrious master of the Neapolitan school, in teaching a pupil for whom he had a particular friendship, kept him *six*

years merely practising the diatonic and chromatic scales, ascending and descending; the intervals of third, fourth, fifth, &c.; together with *turns*, *shakes*, *appoggiaturas*, and passages of vocalization [singing on a vowel] of different kinds. All these lessons were contained on a single page of ruled paper; and in the sixth year, but not till then, some lessons in articulation, pronunciation, and declamation were given. At the end of this year Porpora said to his pupil, who thought he was still in the elements of singing—"Go, my son, you have nothing more to learn; you are the first singer of Italy and of the world." This singer was Caffarelli, the most celebrated vocalist of the eighteenth century, who made money sufficient by his art to enable him to purchase the dukedom of Santo Donati.

CHAPTER IX.

Of Singing (*concluded*)—Advantages resulting from the Practice of the Scales—Avison's Characteristics of Theatre, Chamber, and Church Music—Requisites of a good Singer—General Maxims.

FEW pupils, or masters either, would have patience to continue not for six, but for even one or two years, the practice of the scales and of the graces, without attempting to unite sense to sound, and breathing forth music in song: were they, however, induced to do this, the pupil would sing all the better for it. The knowledge and practice of the scales would make him master of the mechanical parts of music: the graces would teach him expression—so far as that can be considered or embodied apart from the peculiar passion or feeling of the composition; this latter he must learn to impart to it from his own conceptions of the workings of human feelings and passions. The singer should endeavour, as soon as he departs from *sol-fa*-ing, or *vocalization*, to make the sentiment of the piece given to him to sing his own, and to give to it its proper character and expression. All the allowable varieties in composition—all the combinations in which

musical notes are arranged, will have been rendered familiar to him in the practice of the scales, intervals, &c. When he sees the words affixed to notes, he will be enabled to pronounce the former correctly to the sound of the latter; and the most florid passages and the most complicated divisions will present no difficulty.

Each species of music has its own distinctive characters; and the three great divisions—the music for the church, the theatre, or the chamber—have their peculiar expression, though this peculiarity is too often disregarded. "By the ancients," says Avison (in his work on 'Musical Expression'), "airs were sung in three different manners: for the theatre, the style was lively and various; for the chamber, delicate and finished; for the church, moving and grave. This difference," he adds, "to very many moderns, is unknown;" and what was the case when Avison wrote, we fear is so still to a considerable extent. Of late years musical education has been more generally attended to, and better principles have been inculcated; but there is yet much to learn. If as great care were taken in training singers in England as is bestowed upon that object in Italy and Germany, the prestige in favour of vocalists from the two latter countries would soon wear off. There are certainly *more good voices* amongst our own countrymen and countrywomen than there are amongst a population of similar extent on the Continent: good training is all that is wanted to make as many good singers.

To constitute a good singer, feeling, enthusiasm, a highly cultivated mind, and an intimate acquaintance with the various passions that agitate our frame, are essential attributes. Feeling and enthusiasm—a mind capable of appreciating the sublime and beautiful in nature—and an imagination that "bodies forth the forms and images of things,"—that faculty which "elevates the mind by ideal creations, and ennobles man's existence,"—are gifts of nature. They may be nurtured, cultivated, and matured; subjected to the rules of a refined taste, or suffered to run wild and unconfined, and to riot over the domains of fancy in an unchecked career. We need not point out which alternative a singer should choose: he should excite his intellectual powers to sympathize with the noble emotions

of our nature; to mourn with those who mourn, to rejoice with those who rejoice; to glow with patriotism, to thrill with hope, to vibrate with love; his heart should beat responsive to the call of honour, and disdain should fire his soul at mean, ignoble, and degrading acts. The best manner of expressing feeling, of delineating passion, he may acquire by reading and observation; and if the natural are united with the acquired gifts, and all are based on sound scientific knowledge, then the highest pinnacle in the Temple of Music will be attained; and the vocalist, thus qualified, will find the public ear easily bewitched by his enchantments; and listening crowds will hang enraptured on the harmonious strains which he breathes around him.

A few general maxims may well be committed to memory; they will aid and assist the singer in his career.

One of his primary objects should be to attain the facility of giving to sound its proper tone. Tone should be always pure: it should neither be affected by the guttural quality from the throat, nor the nasal by the nose; and it should take the particular expression the music is intended to convey. A full, rich, sweet, or brilliant tone, may be conceived better than described. Words cannot convey accurately the idea of tone; it must be acquired by practice, and by carefully observing the modifications which it assumes in the most perfect instruments.

A correct intonation—the ability of giving to the voice that occasional impulse, swell, and decrease which mark the varieties in the musical scale—is equally important with a good tone. "Intonation is the result of a combined act of the ear, the organs of sound, and of the judgment;" and if the ear be imperfect, a perfect intonation cannot be attained.

Articulation should be distinct; each sound should have its corresponding sense. "Intoning a note is not the sole object of a singer; the mere power of sending forth a sound is not to be taken as a note in the voice. The singer must be able to command the quantity and quality of its tone, and *to speak articulately upon it*—these are the circumstances that constitute a note in the voice." (Bacon's 'Elements of Vocal Science.')

Much of the pleasure with which singing is heard de-

pends on the proper phrasing of the melody; and this, again, on the proper management of the breath. Breath should never be taken between syllables, nor between words which require to be uttered without a pause, to give them their correct grammatical meaning. The same rule should be observed as in speaking—to take breath where the sense requires a pause.

Rests afford a good opportunity for taking breath.

A singer who means to devote his talents to the church should remember that "dignity, simplicity, and pathos are the capital perfections in the manner of a church singer."

Concert-singing admits of a wider range of expression, a more florid style, than are applicable to sacred compositions; but is yet more chaste, more restrained, than that of the theatre. It admits of the development of passion, but restrains action; feeling and emotion may be displayed, but dramatic execution is out of place in the orchestra.

The dramatic style requires more energy, a greater vehemence of declamation, a more impassioned elocution, a more voluptuous expression of sentiment, than any other description of singing. But if the vocalist value his own fame, he will avoid whatever is coarse, vulgar, or debasing.

Chamber-singing *should be* the most refined, the most polished of all. It is in private life where we can most eminently enjoy the simple strain that speaks to the affections: there *nature* should predominate. All artificial restraints should be thrown off, and the singer should appear in his natural character—easy, unaffected, unshackled with those trammels which, in public, he sometimes finds it indispensable to assume.

Whether in the church or the concert-room, on the stage or in the chamber, the deportment and demeanour should be carefully attended to. Neither presuming nor timid—not putting on a bold and confident front approaching to impudence, nor shrinking from observation with the semblance of inward fear; the bearing should be that which good breeding sanctions. Awkward gestures should be avoided, all vulgar habits carefully eschewed.

In the performance of church, concert, or amateur music, no ornaments should be introduced that are not in

character with the piece performed; and the singer should be very careful not to attempt, in the way of ornament, that which he is unable with facility to accomplish. It is a common practice with singers to introduce an extemporaneous passage [*cadenza*] on the first note of the final cadence, or termination of the movement, or penultimate note of a song. Especial care should be taken that this *cadenza* accords with the style and character of the piece, and with the voice of the singer.

Part singing, in which the effect depends upon the simultaneous efforts of several performers, requires that there should be a perfect consent and agreement between them. The music must be performed as written: the introduction of any extempore grace by one singer, will mar the performance of the rest, and spoil the effect. Time must be accurately kept, and, wherever it can be done, there should be repeated practice between the parties singing together, that they may become acquainted with each other's voices, and learn to blend and amalgamate them in perfect accord.

CHAPTER X.

The various kinds of Vocal Music.

In this Chapter we propose to give definitions of the principal species of vocal music.

Air is properly the tune to which the words of a song are sung, but through a musical licence the term has become to be applied to the song itself. In operas the term "air" is applied to all measured music, to distinguish it from the recitative. In the Italian operas there are various descriptions of airs.

Aria cantabile is properly applied to sentiments of tenderness, and it is susceptible of great pathos. In this aria the accompaniments are made subservient to the voice; and it is the only kind of song which gives the singer an opportunity of displaying at once, and in the highest degree, all his powers, of whatever description they may be. It requires a fine voice, and great sensibility in the singer.

Aria di portamento is chiefly composed of long notes, such as the singer can dwell on, and have thereby an opportunity of more effectually displaying the beauties and calling forth the powers of his voice. The subjects proper for this air are sentiments of dignity, but calm and undisturbed by passion.

Aria di mezzo carattere is a species between the *cantabile* and the *portamento*. It is serious and pleasing, and embodies those sentiments which are not of sufficient importance to be made the subject of the other two.

Aria parlante (speaking air) is that which, from the nature of its subject, admits neither of long notes in the composition nor of many ornaments in the execution.

Aria di bravura, aria d' agilita, is that which is composed to indulge the singer in the display of certain powers in the execution. It requires a flexible voice of great compass to execute properly.

Arietta is a short composition, less elaborate than the air, designed to express a more simple and transient emotion.

Ballad originally meant a solemn song of praise; it is now applied to a simple, unornamented composition of a popular character, for a single voice.

Canon is a species of fugue (from *fuga*, because the parts follow or fly after each other), in which three or more performers take up the melody at intervals, repeating it.

Cantata, a composition for one voice, in mingled recitative and air.

Canzone, a composition in one, two, or three parts, in which imitations are introduced.

Canzonet, a diminutive of *Canzone*.

Carols, old ballads sung at Christmas.

Catch, a piece for three or four voices, one of which leads, and the others follow at the distance of a bar, in the same notes, so contrived that they "catch" up each other's sentences.

Cavatina, a short air in one movement.

Chant, a species of vocal declamation used in sacred music.

Chorus, a composition to be sung by a number of voices in parts. Choruses are generally written in four parts—for soprano, contralto, tenor, and bass voices. Operatic

choruses are now generally written for first and second trebles, first and second tenors, and a bass, when both sexes sing together.

Duet, a composition for two voices.

Glee, a composition in three or more parts, each part being sung by one person only.

Hymn, a song of praise.

Madrigal, a composition in three or more parts, each part to be sung by several persons.

Recitative is musical declamation, or an adaptation of words to musical notes, so that whilst measured time and cadence are given to them, the inflection, emphasis, and accent of speech are preserved. Recitatives are always written in common time, of four crotchets in a bar; the notes are executed much according to the singer's fancy, and the recitative frequently begins in one key and ends in another. Generally, recitatives have only a bass accompaniment; when short symphonies, or *ritornelli*, are given to the orchestra or pianoforte, the recitative is said to be accompanied.

Rondo, an air in which the first bars are repeated.

Round is very similar to the canon and catch.

Scena, a composition in alternate recitative and air. As the term "Cantata" is applied to a composition of this kind for the chamber, so "Scena" is applied to dramatic pieces.

Serenata, a love song.

Song, a composition for one voice.

Trio, a composition for three obligato voices, or two chief voices and an accompanying bass.

CHAPTER XI.

Instrumental Performance—Instruments may be learned without the aid of a Master—The First Steps of a Student—The Key-Board of the Pianoforte—Explanation of the Key-Board—Directions to the Learner—Management of the Hands—Fingering—How to acquire a proper Tone—What constitutes a good Pianist—Graces used in Pianoforte playing.

UNLIKE singing, which cannot be properly acquired without the aid of a master, the art of performing on instru-

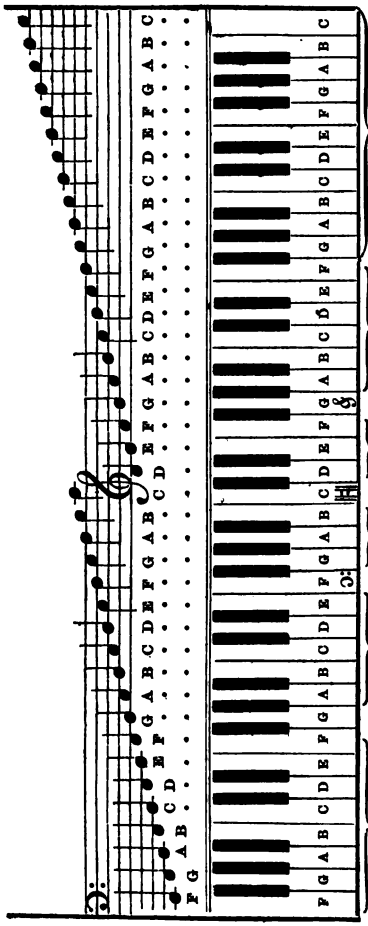
ments may be learnèd by perseverance and attention, by the learner's own efforts, unaided except by an instruction-book. His first step must be to learn the gamut, the notes in the bass and treble staffs, and their value. Having made himself perfectly familiar with these, so that he can read the notes in the staff with ease and despatch, he must apply those notes to the key-board of the pianoforte, if that is the instrument he is about to learn, of which we subjoin a *fac-simile* [See the following page].

It will be seen that the key-board contains two rows of keys, the lower row white, the upper row black; the former are for the natural notes, the latter for the flats and sharps. The situation of the notes on the board may be easily learned from the diagram, by referring the notes from that to the key-board of the instrument, and by recollecting that the first note *before* every group of three black notes is F; and that the note between the two black keys is D. In playing, the black note *above* the natural key is struck for a sharp; the black note *below* the natural one, for a flat. The instrument is imperfect, because the flat F has to be struck for the sharp E, and so through the scale; but no means have yet been found of obviating these defects. Pianos have been made with the black notes cut into two, but they were found not to answer the purposed end.

The learner having made himself master of the great scale, and also learned the position of the notes on the key-board, must then proceed to make himself acquainted with the different scales and keys [See Chapters IV. and V.], and practise them upon the piano. Time should be learned [See Chapter VI.], and be carefully counted, whilst practising the scales.

In practising, it is essential that the learner should maintain a proper position at the instrument. He must seat himself in the centre of the piano, keep his body perfectly upright, and take care never to raise his shoulders in playing. The arms above the elbow require to be a little advanced, and close to the body; their extension is necessary when the lower notes of the bass, or the upper ones of the treble, are required.

The management of the hands requires great care: they must be kept parallel to the keys, at a little distance above



KEY-BOARD OF THE PIANOFORTE.

them. The fingers must be bent at the middle joint, so as to bring the ends parallel with the end of the thumb. The finger must be kept over the centre of the note it is intended to strike, and, in pressing down that note, the others must not move; the finger must be kept upon the note till the next is struck, and then raised. When rests occur, the fingers should be entirely removed from the keys.

The hands should glide, not jump, over the keys, and that so smoothly that even a small weight placed upon the back of the hands would not be displaced.

An essential requisite for facile and correct playing on the piano is the art of *fingering*, or so disposing the fingers that they may readily reach and strike the required notes. In all music for learners the notes are marked as they should be fingered. A note with a × over it must be struck with the thumb; and those with the figures 1, 2, 3, or 4 over them, with the 1st, 2nd, 3rd, or 4th finger. In playing the scale in the bass, ascending, the 4th finger strikes the key-note, and the others in succession to the 5th, which is struck by the thumb; the 1st and 2nd fingers are then brought over the thumb, and thus the scale is completed. In descending, the thumb is placed on the octave; the 7th and 6th are struck by the 1st and 2nd fingers, and then bringing the thumb under those fingers to the 5th, the thumb and five fingers are free for the remaining five notes. In the treble, the thumb being placed on the key-note, the 2nd and 3rd are pressed down by the 1st and 2nd fingers; and the thumb is then passed under them to the 4th. In descending, the 1st, 2nd, or 3rd finger may be passed over the thumb, but not the 4th: one of the long fingers should not be passed over the other; it is not only awkward, but it prevents the sounds blending into each other. The thumb should never be passed over the fingers, but always under them. Facile fingering can only be acquired by practice, and the student should be careful to finger the scale, &c. as marked in the books.

The scales should be practised daily; sometimes even after the student begins to perform regular compositions.

"One of the greatest difficulties in touching the piano," says M. Fétis ('Music Explained'), "consists in drawing

a fine tone from the instrument by a peculiar manner of striking the keys. In order to acquire this art," he continues, "the performer must learn to restrain the action of the arm on the key-board, and to give equal suppleness and strength to the fingers—a thing which requires great practice. A good position of the hand, and a constant study of certain passages, executed at first slowly and with evenness, and gradually increasing in rapidity, will, in the end, give this necessary quality of suppleness. This, however, is not saying that the art of drawing a fine tone from the piano is purely mechanical. It is with this as with every other art, its principle resides in the soul of the artist, and diffuses itself with the rapidity of lightning, even to the end of his fingers. There is an inspiration of sound as there is of expression, of which it is one of the elements."

Pianists are apt to fall into two extremes. Some consider the perfection of playing is, to draw forth a rapid succession of notes in the least possible time; whilst others restrain their ambition to giving a peculiar expression of grace or elegance to their performance, divesting it of brilliancy. To unite and properly blend the two styles, constitutes a great pianist.

As brief rules for the attainment of grace, expression, and finish in playing the piano, the student will do well to commit to memory the following directions, given by C. P. Em. Bach:—

"To form a *clear, pleasing,* and *expressive* performer, three things are requisite:—

"1. *To play correctly,* by covering every note with the finger before it is struck (when possible), so that, in the most difficult passages, the motion of the hands can be scarcely perceived.

"2. *To make the instrument sing,* by taking one finger off the key at the instant the other strikes the following note: and by never playing the notes short or detached, except when expressly marked.

"3. *To play with expression,* by forcing the finger down upon the key (already covered, and lightly touched) according to the accent, or emphasis."

There are several graces used in pianoforte-playing; the principal are the *appoggiatura,* the *turn,* the *shake,* and the *beat.*

The *appoggiatura* is a small note placed before the principal one, and it is always a semitone above or below it; in playing it takes half the value of the principal note. Thus if an *appoggiatura* be placed before a crotchet, both are played as quavers.

The *turn* is a union of the upper *appoggiatura*, which is a semitone above the principal note, with the lower, which is a semitone below it. This mark ~ placed over a note, points out that it should be played with a turn. For instance, if the mark be placed over C, then it is played D C B C. If the turn is placed over a dotted note, the note is struck first, and then the turn is played. The *inverted turn* is pointed out by the mark being placed over the note perpendicularly, ≀, instead of horizontally. It is played by striking the note below the one over which it is placed, and ending on the principal note. Thus an inverted turn on C is performed B C D E. The turn must always be played with energy and spirit.

The letters *tr* (an abbreviation of the Italian *trillo*) denote a *shake*. Shakes are of three kinds: the passing shake, the plain shake, and the shake with a turn. They are all rapid repeats of two notes, the principal note and the note above. There are two repeats in the passing, four in the plain shake, and six in the shake with a turn.

The *beat*, which is seldom used, is the reverse of the shake; it is pointed out by a short stroke being drawn through the mark for a turn, and is commenced on the note below the principal note, the shake being begun on the note above it.

In playing on the pianoforte the proper accent and emphasis should be given to the notes (See Chapter VI.); and to impart a correct and finished expression to the performance, the marks for *legato* or *staccato*, and those of the *crescendo* and *diminuendo*, should be carefully observed.

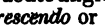
Legato means playing in a smooth and connected manner; it is marked by a curved line being placed either under or over the notes, and in legato passages each note should be held its proper length, and the finger should not be raised from one key until the next be struck.

Staccato, denoted by a short perpendicular dash placed over each note, means short, distinct: in staccato passages the notes should be played as if a rest were placed between

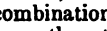
them. Each note should be smartly struck and the finger raised directly. Sometimes the staccato is denoted by dots placed over the notes, instead of dashes; then the fingers should not be taken quite so quickly from the keys.

In *crescendo* passages the sound must be gradually increased; they are either marked by an acute angle pointing to the left, or by the word *crescendo* or *cres.*

Diminuendo is the reverse of *crescendo*, the sound being gradually diminished. *Diminuendo* passages are signified either by writing the word, or its abbreviation *dim.*, over them, or by an acute angle pointing to the right.

When the angles are placed opposite to each other  they show that the passage must be played *crescendo*, and then gradually softened.

A chord in music means several notes, which, when struck together, form an harmonic combination, In notation they are placed one exactly above the other. The word *tremando* written over a chord points out that it is to be played quickly as a shake. The word *arpeggio* signifies that the notes of the chord, instead of being struck simultaneously, are to be played distinctly and rapidly, from the lowest to the highest.

The *pause* signifies that the regular time of movement is stayed, and the sound drawn out or lengthened. The *bind* or *tie*  placed over two notes in the same degree, means that the first only should be struck and the finger kept down the time of both.

CHAPTER XII.*

Musical Instruments—The Violin, Viola, Violoncello, Double-Bass—Directions for playing on those Instruments—The Flute, Oboe, Clarinet, Bassoon, Trumpet, Horn, Trombone, Serpent, Ophicleide—Hints as to performing on the Brass Instruments—Triangle—Drums—The Organ—Cymbals—Harp—Instruments required to constitute a good Orchestra—Instrumental Compositions.

THERE are a variety of musical instruments, used either as solos, or in the orchestra in combination; and a knowledge of their different natures and powers will be useful to the student, as well as to all who have a taste for the art and science of music.

The *violin* is the principal instrument of the orchestra. Its scale extends from G above the bass clef note to D in *altissimo*, and within that compass all the notes of the chromatic scale can be produced. In the hands of a finished player, the quarter-tones of the enharmonic scale may also be expressed upon it. Its four strings, when struck open, sound G, D, A, and E: they are tuned by fifths; and by proper fingering, B flat can be distinguished from A sharp, E flat from D sharp, &c.: whilst the organ, pianoforte, and all wind instruments, have only one sound for those notes.

The violin is played with a bow; the other bowed instruments are,

1. The *alto*, the *viola*, or *tenor*, which plays the tenor part, as the violin does the treble or soprano. Its gravest sound is the C above G gamut; its scale extends to G or A in *alt*; and the notation for it is in the counter-tenor clef. It requires a larger bow than the violin; and is not so pleasing or expressive an instrument by itself, but it is of great use in filling up the harmony in an orchestra.

2. The *violoncello*, or bass viol, which has a compass from double C to three or even four octaves above. Its

* This chapter is partly abridged from chap. xviii. of M. Fétis's excellent work, 'Music Explained,' which is too little known in England.

open strings are C, G, D, A. It has a rich and mellow tone, and is frequently used in *obligato* accompaniments, blending and assimilating well with the voice, to which some of its tones bear much analogy.

3. The *contre-basso*, *violono*, or *double-bass*. This is a gigantic instrument,—with four strings in Germany, and three in England and France. The music for the double-bass is written as that for the violoncello, but it is in point of pitch an octave lower. It tone is deep, full, and grand; the lowest note is generally double double C, and its extent about three octaves.

The manner of playing these instruments is composed of two parts—*bowing* and *fingering*. The latter, on the violin, is a peculiarly delicate operation, as it is by the skilful management of the fingers that the various intonations are produced. The pressure of the fingers on the strings against the neck of the instrument shortens their vibrating power, and must be given with energy in order to produce pure sounds. The fingers should, therefore, be pressed on the strings with great force, and this is productive of some pain to the beginner. Precision is also requisite in the fingering, in order to render the intonation just. The instruments are not made of the same size, and the spreading of the fingers to produce the intonations must be in proportion to the length of the neck of the *violin*, *tenor*, or *violoncello*. The greater the length, the wider must the fingers be spread in going from one sound to another. The bow has also an influence in producing precision of tone,—for as the position of the left hand is fixed in a certain way for each sound, the intonation may be higher or lower according to the mode of pressure with the bow.

In *bowing* for the violin the greatest difficulty is to obtain freedom in the action of the wrist. This appears remarkably easy when we look at an expert violinist as he is performing: but it really takes many years' practice and study before it can be mastered. The *drawing* and *pushing* of the bow are capable of numerous combinations. Several sounds are sometimes drawn forth with one stroke of the bow; at others, the notes are elicited by a number of strokes, one for each note: this requires an entire correspondence between the movements of the fingers of the left hand and those of the right arm. There are also

successions of notes, which are detached in rapid movements by single strokes of the bow, drawn or pushed. This is called *staccato*, and demands considerable skill in the performer.

A very great variety of effects may be produced from the violin and violoncello by ingenious and skilful bowing. The bow can be made flexible or tense by means of a screw, according to the wish of the performer, or the nature of the passage he is about to play: and as it is drawn across the strings near to, or at a distance from, the bridge, the sounds are modulated. No precise rule can be laid down for producing these modulations; they must depend upon the mechanical dexterity of the performer, united to a delicate ear, refined taste, and correct judgment.

The *violin* and *viola* or *tenor* are played alike, the fingering and management of the bow are the same, and the instrument, resting on the shoulder, is supported by the left hand. The *violoncello* is held between the legs of the artist, and requires a peculiar fingering. As the spreading of the fingers to produce the various intonations must always be in proportion to the length of the strings, it follows that notes of the same denomination, affected by sharps, flats, or naturals, cannot be made with the same fingers as on the violin. The thumb has also to leave the neck and be placed upon the finger-board, in order to reach the high sounds. On the *contre-bass* the length of the strings is such that the performer has every moment to change the position of his hand, which makes rapid passages very difficult of execution; and the concurrent action of the fingering and the management of the bow is extremely difficult to acquire.

The violin, tenor, violoncello, and double-bass compose the foundation of all orchestras, and no other instruments were employed during the first half of the eighteenth century.

The wind instruments of the orchestra are more numerous than the stringed and bowed ones. They are the flute, oboe, clarinet, bassoon, trumpet, horn, trombone, serpent, and ophicleide.

1. The flute comprises three varieties. First, the German flute, or *flûte traversière*, which derives its name from being revived in Germany after it was lost for ages. Till

the end of the eighteenth century this instrument (which is played sideways by breathing into the mouth-hole, or *embouchure*) had only seven holes, six of which were *stopped* by the fingers, and the seventh *opened* by means of a key. Of late years seven additional keys have been added, by which the natural defects of the instrument are remedied, and it is very effective either in the full orchestra or in concerto playing. Its compass is from C below the treble clef note to C or G in *altissimo*, and all the chromatic notes can be produced by means of the keys. The second variety is the *English flute*, *flute-à-bec*, or *flageolet*, which is played lengthways, like the clarinet or oboe. Its tone is sharp and shrill, capable of being agreeably modulated by the action of keys; and, though seldom used, it is occasionally introduced very effectively. The double flageolet has a pleasing effect in harmonizing an air. The third variety is the *piccolo*, or octave flute, so called from its notes being an octave higher than those of the German flute. Its tone is extremely shrill, and only calculated for compositions of a noisy character or martial music. In military bands the *fife*, an instrument of the flute species, is also used: its scale is from D to B in alt.

To play the flute well it is necessary to have a good embouchure, *i. e.* such a conformation of the lips as will convey the breath into the instrument free from that hissing which we sometimes distinguish in flutists. Detached notes are sounded by means of an articulation called the *stroke of the tongue;* and it is indispensable that the artist should possess great flexibility in that organ, in order to execute rapid passages with clearness. A perfect correspondence between the movements of the tongue and those of the fingers must also be established.

2. The *hautboy*, or *oboe*, is an instrument played with a reed, that is, a thin piece of wood forming the mouthpiece. Its compass is from C above the bass clef note to C, or even D or E, in *alt*. It commands every semitone within its compass, and is an effective accompaniment for the voice in *obligato* passages, as its tone blends beautifully with that of the singer. In order to play well on the oboe the performer must master the difficulty of retaining the breath and softening the sound, and avoid vibrating the

reed only, without emitting sound from the instrument. It is in the hands of a skilful performer the most perfect of our wind instruments.

3. The *clarinet*, or *clarinetto*, is a reed instrument, which produces a fine, full, rich, and mellow tone. Its compass is from E below the F clef note to E in *alt*, or even higher; but although it has been very much improved, and has now fourteen keys, its sounds are deficient in equality of tone, and there is so much difficulty in producing the chromatic semitones, that different instruments are required in different keys. Three kinds of clarinets are made, viz., in C, in B flat, and in A. No instrument has a more rich and beautiful body of tone than the clarinet: in orchestral music and military bands (of which latter it is the chief support), it has a fine effect. The Germans are the best performers on the clarinet: Their tone is not so voluminous and powerful as that of the French, and perhaps of the English *artistes*, but it is sweeter. To give at once firmness and softness to the tone the reed should be rested on the lower lip, and not pressed by the upper.

4. The *bassoon*, or *fagotto*, as the Italians call it, from its resembling a bundle of sticks tied together like a faggot, is also an instrument of the reed kind. It is the bass to the clarinet and oboe, and its compass extends from double B flat to the twenty-second note, or third octave, above that sound. It includes every semitone between these two extremes, and is an instrument of great utility in a band, its sounds mixing pleasantly with those of the stringed bass instruments. It is very useful, too, in sustaining the voice in choruses.

5. The *trumpet*, or *tromba*, is an instrument of great antiquity, and much used in martial music. It has only three natural notes, G, C, and E above the bass clef note; but by the aid of a slide it has been improved, so that it can now produce all the notes and chromatic passages from C on the bass staff to D in *alt*. The notation for the trumpet is always written on the treble staff, in the key of C; but the key it should be played in is written at the commencement of the staff, as *tromba* in D, G, &c. Its tone is an octave shriller than the cornet. The *bugle* and *cornet-à-piston*, now such favourites from the fine volume

of sound they emit and the beautiful modulations of which their sounds are capable, are, in effect, but keyed trumpets.

6. The *French horn* is a brass instrument, now of considerable power and capable of great variety of tone and effect, derived from the old *Corne de Chasse*, or hunting horn. It can be played in any key, by means of its crooks, or convolute tubes; and from C below the bass clef note to C in alt, it ranges through about fifteen notes. The notation for the French horn is always in C; it is written on the treble staff, an octave higher than its real notes, and the key is marked at the beginning, as *corni* in D, A, &c. Its tone is an octave graver than the trumpet, but it has a richer and mellower sound, and enriches and blends the harmony whenever it is introduced. It is, too, a powerful and at the same time an agreeable instrument for solos.

7. The *trombone* is an instrument which can give all the notes in open sounds by means of a slide, that lengthens or shortens the sonorous tube. There are three kinds of trombones: 1st, the *bass*, with a compass from double B flat to F on the treble staff; 2nd, the *tenor*, whose compass is from G gamut to G the treble clef note; and 3rd, the alto, the compass of which is from F bass clef note to C in alt. The trombone, considered as a bass, a tenor, and a counter-tenor instrument, is a highly valuable appendage to a grand orchestra; and it adds great power and brilliance to the harmonious combination of many instruments.

8. The *serpent* derives its name from its shape. It is a bass instrument, used chiefly in military bands, and sometimes introduced into the orchestra to strengthen the double-basses. Its compass is from double C to G, or B on the treble staff. It has a coarse and strong tone, but possesses great power and energy. The notes are produced by means of finger-holes, as in the bassoon.

9. The *ophicleide* is an enormous brass instrument, only introduced into our orchestras within the last twelve or fourteen years. It is of German origin, and the notes are produced by keys. It has the same scale as the serpent, but a much superior tone. Its effect in playing the *contre-bass* part in the magnificent choruses of Handel, is sublime in the extreme. Large orchestras are now not con-

sidered complete without an ophicleide, and they have been introduced into our military bands.

It is very difficult to perform on any of the brass instruments, and in particular upon those the intonations of which are modulated by the movements of the lips, as the horn and trumpet. There are first and second horns in every band; because the performer who can produce the middle and low sounds upon that instrument, cannot produce the higher notes, nor the reverse. The great art in playing on the wind instruments is to produce the sounds with neatness, and to impart volubility and facility to the execution. Practice and a peculiar art in managing the breath are necessary to attain any excellence; and fine lips, with a robust chest, are essentials in the performer.

The instruments of percussion used in the orchestra are the *triangle* and *drum*.

1. The *triangle* takes its name from its shape. It consists of a steel rod, and is struck by a stick of the same metal. It is used to mark the rhythm.

2. The *drums* used in the orchestra are of three kinds: the *kettle-drum*, the *side-drum*, and the *double-drum*. The kettle-drum is formed of two large basins of copper or brass, covered with goat-skin; one of which sounds the tonic C, the other the dominant, or fifth, G. The music is written in C; and the key to which the drums are to be tuned (which should never be lower than F or higher than C for the large drum, nor lower than F for the small one) is marked at the beginning of the staff. The other drums are cylinders, each end of which is covered with skin; and the sounds are modulated by tightening or loosening these skins by the use of braces stretching along the outside of the cylinder. In the kettle-drum the skins are contracted or expanded by means of screws. The double-drum is beaten at both ends, and the notes, written in the bass clef, have single and double stems. The latter indicate the main stroke, the other the more feeble ones. The music for the side-drum is written in C on the bass clef.

The instruments here enumerated are the chief, and most usual, but not the only ones which are introduced into an orchestral band. At our grand musical festivals

the organ, the most noble of all instruments, is also one of the most prominent in its effects. In this well-known instrument the notes are produced by a variety of pipes and stops; and it is played upon by keys and pedals, the former being struck by the fingers, as in the pianoforte, and the latter are put in motion by the feet. The majesty of its tones, and its power of sustaining the chords, makes the organ a most appropriate instrument for solemn and sacred music. The *seraphine* is a modification of the organ; in which the sounds are produced by the action of the wind on small metal valves, placed over the sound-holes in the wind-chest. The instrument is played like the pianoforte, and its tones are very sweet and musical.

The *cymbals*, which are of Hebrew or Greek origin, and consist of two plates of brass, held in each hand by means of loops at the back, through which the hands are passed, are much used in military bands, and have been introduced into the orchestras at our theatres. The music may be written either in the bass or treble clef.

The *harp* is also occasionally made an orchestral instrument, though it is very seldom used in combination, but chiefly as an accompaniment to the voice, or for solos. Its compass is from double F to F in *altissimo;* the semitones in the chromatic scale are produced by the use of pedals; and, in the hands of a good performer, it is an expressive and beautiful instrument.

A good orchestra, competent to give effect to the symphonies of Haydn or Beethoven, or the overtures of Mozart, Rossini, Cherubini, or Weber, should consist of at least thirty violins, eight violas, eight violoncellos, six double-basses, two flutes (or flute and piccolo), two oboes, two clarinets, two bassoons, four horns, two trumpets, three trombones, one serpent, a pair of kettle-drums, and sometimes a side-drum or triangle.

The principal compositions for instruments are the *overture* and the *symphony*. The former derives its name from being played before an opera or a ballet. It generally consists of a slow movement, followed by a spirited one, and sometimes contains the *motivo*, or subject, of most of the airs in the opera. The *symphony* is a much more elaborate composition than the overture. There are several movements in the symphony:—1, the slow movement, or

adagio; 2, the allegro; 3, the andante, which again is divided into the minuet and trio; and 4, the finale.

Besides the overture and symphony, there are *solos* for instruments, and concerted pieces from two up to nine parts, which are called *duets, trios, quartets*, &c. In the solo the principal instrument is usually accompanied by others, which are kept subservient to it; and when there is a full band accompaniment, the piece is called a *concerto*. A *sonato* is a piece of music for a single instrument, either unaccompanied, or accompanied only by one or two others at the most. The early writers for the harpsichord and pianoforte composed *sonatos*, but they are now almost extinct, being succeeded by *fantasias, capricci, airs* with *variations*, and *pot-pourris*.

CHAPTER XIII.

Melody—Harmony—Melody the natural form of Music—Rhythm; Modulation—Definition of Harmony; Chords—Consonances and Dissonances; Inversions—Natural Dissonant Chords—Chords by Prolongation—Chords by Substitution—Chords by Alteration—Thorough Bass.

"THE human voice," says M. Fétis ('Music Explained'), "is the basis of all music. This first of instruments, at once the most touching and the most powerful in the variety of its effects, by itself gives only the idea of successive sounds, without even suggesting the possibility of their simultaneous utterance. Hence it is, without doubt, that the melody is first observed, when early education has not modified the natural tendencies; and, not only so, it is melody alone which draws the attention of those who are entire strangers to musical studies, and the harmony of their accompaniments strikes their ears in vain." Melody is subject to established laws, like harmony, and these cannot be violated without offending the ear.

Correct *rhythm* is essential to good melody. By *rhythm* we mean, "the measured division of time, or the proportion which the parts of the movement have to each other."

" Rhythm is either simple or compound: it is simple when only one kind of combination of time is heard; it is compound when different kinds of combinations are heard together."

Modulation, or the change from one key to another, is another quality of melody: this prevents that monotony which would become unpleasing and fatiguing if persisted in. The modulation should proceed from the leading key to an analogous one;—that is, either into its relative key, viz. the one which has the same number of sharps and flats [See Chap. V.]; or that which has a sharp or flat more; or that which has a sharp or flat less. "The boldest composers" (says M. Fétis) "confine themselves within these limits, because they have ascertained that everything which goes beyond these offends, instead of pleasing, the ear."

"When several sounds are heard simultaneously, and, united together, strike the ear more or less agreeably, they receive the collective name of *chords*. The general system of chords, and the laws of their succession, belong to a branch of the musical art which is designated by the name of *harmony*."—(M. Fétis.)

Much has been written on the science of harmony; and to master all its rules and laws requires years of careful and attentive study. Here we can only give a few of its simplest definitions. Those who wish to go further into the subject must study the works of Fétis, Kohlman, Jousse, Hamilton, Wade, &c.

M. Fétis is one of the clearest writers on harmony. We abridge his remarks, in a work to which we have frequently referred, 'Music Explained.'

He truly says, that the habit of hearing harmony from our infancy, makes us feel the need of it in music; and, in the present state of our musical cultivation, it is rare that two voices sing together without endeavouring to harmonize, that is, to make concords. Two voices can only make chords of two sounds, and these are the simplest possible. The distance between two sounds is called an interval; and these intervals extend, as we have already stated [Chap. IV.], from the first or tonic to the octave. Each interval may be presented under different aspects. "An interval reduced to its smallest extent, and in which

we find only the signs of a single key and mode, is called a *minor;* the same interval, in its greatest extension, relative to the key, is called a *major.* For example, the interval from C to D flat is a *minor second;* that from C to D, a *major second.* But if, by a momentary alteration, which does not conform to any key, we construct intervals smaller than minors, or greater than majors, we designate the first by the name of *diminished,* and the others by that of *augmented.* For example, the interval from C sharp to F is a *diminished fourth,* which can be considered only as a momentary alteration, for there is no key in which C is sharp, in which F is not so likewise; and for the same reason, the interval from C to G sharp is an *augmented fifth.* The different degrees of extension of the intervals are, therefore, of four kinds—*diminished, minor, major,* and *augmented.*"

Some intervals are less agreeable to the ear than others: the agreeable intervals are termed *consonance,* or *accord;* the disagreeable ones, *dissonance,* or *discord.* The consonant intervals are the *third, fourth, fifth, sixth,* and *octave.* The dissonant are the *second, seventh,* and *ninth* (or interval above the octave).

Intervals have the property of *inversion; i. e.,* any two notes whatever may be, in regard to each other, in an inferior or superior position. Thus, C being the inferior note and E the superior, the interval between them is a *third;* but if E is the inferior and C the superior, they form a *sixth.* Inversion is a source of great variety to the harmony, which naturally is formed on what is called the common chord, or harmonic triad, which consists of a bass note, its third, and perfect fifth, with the eighth when in four parts. The harmonic triad is either *major* or *minor.* The *major triad* consists of a bass note, its major third, and fifth—thus C, E, G, and C, E, G, C, are major triads. The *minor triad* consists of a bass note, its minor third, and perfect fifth—thus A, C, E, and A, C, E, A, are minor triads.

Any notes standing in the same relation form major or minor chords. These chords are capable of three arrangements by inversion. In the first, or perfect chord, the chord is composed of the third and fifth. In the second, the chord includes the third and sixth; this is the chord

of the sixth: in the third, the intervals are the fourth and sixth; and this is the chord of the fourth and fifth.

There are in harmony *natural dissonant chords*, *chords by prolongation*, *chords by substitution*, and *chords by alteration*. The first are those dissonant chords which do not offend the ear, even when heard directly and without any preparation. The second require the dissonant note to be heard first in a state of consonance. In the third, one note which enters more readily into the composition of the chord is substituted for another. In the fourth there is a momentary alteration of one or several notes, by the introduction of an incidental sharp, flat, or natural. There are some harmonies in which prolongation, substitution, and alteration are combined, two by two, or altogether.

If the learner has made himself acquainted with the nature of the different keys, and the denominations of the intervals, &c., as described in previous chapters, he will have no difficulty in obtaining from the foregoing remarks a correct idea of harmony, and he can extend his studies at his leisure.

Thorough or figured bass is the art of accompanying the bass notes of a piece with the proper chords, denoted by figures placed under or over those bass notes. To explain this branch of musical science would require a treatise of itself. A knowledge of it is not absolutely necessary to the amateur; but those who wish to make themselves masters of it cannot consult a better authority than Jousse's 'Lectures on Thorough Bass,' published by D'Almaine and Co.

CHAPTER XIV.

Definition of some of the principal Terms used in Music, which have not been already explained.

THE *repeat* 𝄇 is used to show the place to which the performer must return when a passage has to be repeated.

The *direct* 𝄅 is placed at the end of a staff, to show upon what degree the first note of the following staff is placed.

Rinforzando, — —. These smaller marks point out where the sounds are to be increased or diminished, but in a less degree than the *crescendo* or *diminuendo*.

Abbreviation, —, a thick single stroke, drawn *over* a semibreve, or *through* the stem of a minim or a crotchet, shows that they are to be played as quavers. A double stroke divides the minim or crotchet into semi-quavers. If the same mark is placed *after* a group of notes, it shows that they are to be repeated.

A *brace*, { connects the two staves in pianoforte or organ music, the lower of which is for the left, and the upper for the right hand.

The Italian language is admitted very largely into musical nomenclature. The time, character, and expression of a movement are denoted in terms derived from Italy: thus we find the following applied to the various modifications of time:—

Grave, the slowest movement.
Adagio, slow and solemn, but a degree faster than grave.
——— *non troppo*, not too slow.
Largo, slower than adagio; being the third from slow to quick of musical movements.
Larghetto, a degree quicker than *largo*.
Andante, a slow and distinct movement.
Andantino, a degree slower than *andante*.
Calando, gradually softer and slower.
Allegro, a quick and spirited movement.
——— *assai*, or *molto*, very quick.
——— *con fuoco*, quick and animated.
——— *moderato*, moderately quick.
——— *ma non troppo*, quick, but not too fast.
——— *vivace*, quick and lively.
Presto, quick; *prestissimo*, very quick.
Piu presto, quicker than presto; *poco presto*, a little quick.
Ad libitum, at pleasure.
Accelerando, accelerating the time.
Rallantendi, or *retartando*, gradually decreasing the movement.
Sostenuto, to sustain each note its full time.

The character, style, and expression of a composition are pointed out by the following Italian words:—

Affetto, con affetto, with tenderness.
Affettuoso, a tender, soft, and delicate style.
Agitato, agitated, with passion and fire.

Amoroso, with tenderness and delicacy.
Animato, spirited, bold, animated.
Appassionato, with great feeling.
Brilliante, or *con brio*, with brilliancy.
Cantabile, in a graceful and singing style.
Dolce, softly, sweetly.
Dolce e lusingando, in a soft and insinuating manner.
Espressivo, or *con espressione*, with expression.
Feroco, in a fierce, hurried style.
Fieramenti, bold and spirited.
Fuoco, con fuoco, with fire and spirit.
Furioso, or *con furia*, with great spirit, force, and energy.
Gustoso, or *con gusto*, with taste.
Leggiero, in a light manner.
Lusingando, in a playful style.
Maestoso, dignified, in a majestic style.
Pastorale, in a simple, unpretending style.
Scherzando, in a light playful manner.
Spiritoso, with spirit and animation.
Vigoroso, with force.
Vivace, lively.

These words are placed after the words denoting the time: thus *andante, affettuoso*, a slow movement, played with softness and delicacy; *allegro, agitato*, quick, with passion and fire.

The increasing and diminishing of the sounds are also pointed out by Italian words. *Crescendo, diminuendo*, and *rinforzando* have been explained.

Forte, f., or *for.*, loud; *fortissimo*, or *ff.*, very loud.
Mancando, decreasing the sounds.
Meno, less; as *meno forte*, less loud.
Mezzo, or *mez.*, half, moderate; as *mezzo forte*, moderately loud.
Piano, or *pia*, soft; *pianissimo*, or *pp.*, very soft; *mezzo piano*, moderately soft; *piu piano*, more soft; *pocu piu piano*, a little softer.
Perdendosi, diminishing the sound till it dies away.
Smorzando, diminishing the sounds.
Sotto voce, in a soft manner.

We subjoin a few more Italian words and musical terms, the knowledge of which may be useful to the learner.

The letter *a* in Italian signifies *in, for:* thus *a due*, for two voices; *a tempo*, in time.
Accompaniment is the instrumental part added to a song or other vocal piece of music.

Acute, high; *grave*, low.

Arco, or *col arco*, with the bow; indicating that the bow is again to be used, after a passage has been played *pizzicato*, *i. e.*, with the fingers.

Bene placito, placed over a passage, denotes that the performer may vary and ornament it at pleasure.

Bis. Where this word occurs over a passage, it must be repeated.

Cadence, the close of a musical sentence.

Cadenza, an extemporaneous close, introduced by the vocalist.

Da capo, or *D. C.*, placed at the end of a bar or a piece of music, means that it must be played from the beginning.

Fioritures, ornaments; passages introduced into an air by a singer.

Loco, play the notes as written. It means that the notes, after being played an octave higher, go back to their regular pitch.

Obligato, a part which the performer is obliged to play.

Ottava, an octave; *ottava alta*, or 8*va*, placed over a passage, indicates that it is to be played an octave higher than written.

Pitch, the acuteness or gravity of a sound.

Rifioramenti has a similar meaning to *fioritures*.

Ripieno, second violins; applied to music, it shows that the part is a subordinate one.

Subito, quickly; *volti*, turn over; *volti subito*, or *v. s.*, turn over quickly.

APPENDIX.

The Theory of Sounds—The Science of Acoustics not generally cultivated—Definition of Sound—How Sounds are produced and conveyed—The Velocity of Sound—Proof that Sound is produced by Vibration—Elasticity necessary to Sound—Reflection of Sound—Rarefaction of the Air decreases the Intensity of Sounds—Distances at which Sounds may be heard—Application of the Theory of Sound to Music.

THE science of Acoustics, or "that branch of natural philosophy which treats of the origin, propagation, and effects of sound," although affording much matter for interesting inquiry, appears to be less generally studied and understood than any other. This would appear from the fact that, after the two Houses of Parliament were burned down in 1834, a committee of the House of Commons was appointed to investigate the nature and properties of sound, with those of heat and ventilation, in order that the theory might be applied with the best practical effect to the new buildings. On the two latter subjects many scientific men presented themselves to be examined; but on sound only one gentleman appeared who was competent to offer any information relative to its phenomena.

Sound is defined to be "an effect or impression on the ear, supposed to be occasioned by the tremulous motion of the air acting on that organ." It is, says Mr. A. W. Webster, in his ingenious treatise 'On the Principles of Sound,' (1840,) "A property inherent in the atmosphere, and is elicited by the constriction (contraction or compression) and subsequent expansion of its particles." Motion is essential to the production of sound—yet there are motions which do not produce any sound at all, as the flight of a bird through the air, or the waving of the hand: we should, therefore, rather define sound as a property inherent in all substances, which is produced by contact, and modified or modulated by the surrounding atmosphere that conducts and diffuses, if it does not produce it.

The human ear is a very beautiful mechanical arrangement for receiving and discriminating sounds. "When," says Dr. Comstock, "a sonorous or sounding body is struck, it is thrown into a tremulous or vibrating motion. This motion is communicated to the air which surrounds us, and by the ear is conveyed to our ear-drums, which also undergo a vibratory motion, and this last motion throwing the auditory nerves into action, we thereby gain the sensation of sound." That it is the air which conveys sound to the ear is proved by a simple experiment. Put a bell, the hammer of which is set in motion by a spring, into the receiver of an air-pump. Exhaust the air, and, although the hammer continues in motion, no sound is heard. Admit the air, and the sound is again distinguished, becoming louder and louder as the receiver acquires larger quantities of the conducting fluid.

Air is not the only conductor of sound; water, gases, solid bodies, also conduct it, and it travels through each with various degrees of velocity. According to Mr. Addams, who has devoted much time to an inquiry into the nature and properties of sounds, it is conducted through air at the rate of 1130 feet per second; whilst, in the same division of time, it travels through water 4900 feet; cast-iron, 1090; steel, 17,000; glass, 18,000; wood, 4636 to 17,000. Sir John Herschel, in his 'Treatise on Sound,' has collected the results of the experiments of many philosophers upon the velocity with which sound is transmitted. They vary considerably; the difference of temperature and of the instruments occasioning this dissimilarity. The most usual computation is that of Flamsteed, Colley, and Derham, which gives a space of 1142 feet as traversed by sound in a second. This computation, at a temperature of 77½° Fahrenheit, is correct. Sounds, of whatever pitch, have the same velocity, *i. e.*, they travel over the same space in the same period of time.

Bodies in a state of repose easily emit sound. Solids must be struck—strings, struck or pulled, or friction must be applied to them. A species of motion is thus given, called vibratory, or *vibration*, a term which Dr. Johnson explains, giving Sir Isaac Newton as his authority, as "a state of being moved with quick reciprocations or returns."

That sound is produced by the vibrations of the sound-

ing bodies, is shown thus: stretch a string to any degree of tension, then pull it with a quick jerk in any direction, upwards, downwards, or sideways, it will return to its first position and rest there, after a series of vibrations, more or less in number, which are distinctly seen, and a sound is heard. If the string is struck, instead of being pulled, the effect is the same; and the sound varies as it is struck nearer or at a greater distance from the centre or the extremities. The application of friction produces the same results. If a sounding body of considerable size is struck, the vibration is also perceptible; where not seen, it is sensible to the touch. Strike a glass or a bell, and a sound is produced; touch it with the finger, and the sound is softened, if not altogether extinguished, but the vibration is felt. The low and high notes are caused by the difference in the velocity of the vibrations; slow vibrations produce grave, quick ones acute notes.

Elasticity—that inherent principle in bodies by which they restore themselves to their former figure, after any external pressure or tension—is essential to sound. The air is elastic; and when displaced by the motion of any body, it at once rushes to its original position as that body progresses through it. Strings and skins are elastic—so are most metals. Destroy the elasticity of a harp-string or a drum-head by the application of water, and they cease to sound. But although elasticity is essential to sound, all elastic bodies are not sonorous: dough and putty will at once occur to the reader as examples.

Motion propagates sound, which, following the same laws as moving bodies or light, progresses in straight lines. Like light, it is also reflected, or thrown back, when it meets interruption from any solid surface. In a room sound is reflected from the walls in different angles, which vary with the position from which the sound is emitted, and also with the shape of the room. The smoother the walls and ceiling of the room, the better sound is heard, as irregularities of surface absorb sound and diminish its effect. In the open air smooth surfaces transmit sounds farther than rough ones. Persons standing on each side of a river can hear themselves speak, when their voices would be inaudible at the same distance over land. The quality of sound, called echo, is produced by some inequality in the reflecting body collecting, as in a focus,

several diverging lines of sound, which are all reflected back to the spot from whence they originally issued.

A uniform temperature increases the clearness and intensity of sounds, which, for that reason, are much more distinctly heard during night than in the day. In the latter, currents of air, of different densities, are constantly ascending and descending, which render the atmosphere a less perfect conductor than it is at night, when the temperature is more equal. It is a uniform principle that "an impure and misty state of the atmosphere deadens sound; a uniformly dense (close, compact) medium gives it a clearer tone and greater intensity." When the air is much rarefied (expanded and diffused) sounds are heard with difficulty. This is experienced in ascending high mountains, for the higher we reach, the more rarefied the air becomes; and sounds which would be perfectly loud and distinct are scarcely distinguishable; a pistol fired off a few yards' distance would not be heard, or heard very imperfectly. The same effect is experienced by aëronauts. Mr. Green, so celebrated for the frequency of his aërial voyages, says, that the facility of hearing lessens rapidly as the distance from the earth increases. At the altitude of 27,146 feet (5 miles, 1 furlong, 86 feet) he could distinguish the ticking of his watch and the voice of his companion; but the temperature had become much colder—and as coldness tends to the condensation of the air, the conducting power of the atmosphere, though greatly lessened, was not destroyed.

Sounds may, with the concurrent circumstances of a dense atmosphere, smoothness of surface, favourable direction of the wind, and stillness, be heard at a great distance. Some instances on record of the extent of space over which sound traverses seem almost incredible. Dr. Hearn, in 1685, heard the guns fired at Stockholm when two hundred miles distant; and the cannonade between the English and the Dutch, in 1672, was heard in Wales, which was even a greater distance. Sir Stamford Raffles also relates, that a volcanic eruption at Tomboro, in Sumbawa, was heard at the distance of more than one hundred miles: of these accounts, however, we confess ourselves to be very sceptical; we do not question the veracity of the relators, but we think they were deceived. Better authenticated cases of the transmission of sound are re-

corded in Derham's 'Physico-Theology,' where we find instances of the report of cannon being heard at the distances of fifty-five, sixty-six, and ninety miles.

The human voice may in the northern latitudes be heard at considerable distances. In the polar regions conversations have been kept up at the distance of a mile and a quarter; and Mr. King, who accompanied Captain Back in one of his expeditions to the north, frequently heard the natives talking to each other at distances of half or three-quarters of a mile.

There is no determinate distance at which sounds can be heard; and no law can be laid down on the subject. But their intensity is greatly increased, and of course they can be heard farther, by preventing their diverging. On this principle ear and speaking trumpets are constructed. The sound, when created, being collected in these tubes and concentrated, instead of being spread in the air, is conveyed with greater intensity and force, and heard at a more considerable distance. Speaking-tubes from one apartment to another are constructed upon the same principle. By them the voice is conveyed into quarters where it could not possibly be distinguished without their aid. By causing vibrations in the column of air contained in a hollow tube, many beautiful sounds of various pitch may be produced.

To develop all the phenomena of sound would require a much larger space than the limits of our "Library" will allow; but, in thus illustrating some of the first principles of acoustics, we shall the better prepare the student for the application of the theory of sound to the science of music.

Sound may be said to be the first principle of music; and the "whole science of music," as Mr. Higgins remarks in his ingenious work on 'The Philosophy of Sound,' "may, in one sense, be said to depend on the fact that all sounds have the same velocity." The other ascertained facts connected with the science of acoustics—viz., that sounds are produced by putting the sounding bodies in a state of vibration; that they are modified and modulated by changes in the surrounding atmosphere; that elasticity is necessary to their production; that a confined column of air, put in a state of vibration, produces different sounds as it is condensed or rarefied; and that sounds are grave

or acute in proportion to the velocity of the vibrations—these facts first suggested the invention, and have led to the improvement, of musical instruments.

Musical instruments may be divided into four distinct classes:—First, stringed instruments, as the harp; second, those of percussion, as the drum; third, wind instruments, as the organ and trumpet; and, fourth, metallic instruments, as bells. The strings of instruments are elastic; the longer a string is made the quicker its vibrations; and strings of equal length are made to vibrate unequally, by giving them different degrees of tension, or by making those which are to produce the grave or bass notes heavier than those from which the acute sounds are elicited. Instruments of percussion, such as drums and tambourines, are made on the same principle as stringed ones. They are covered with the skins of animals, rendered more or less elastic by giving them a greater or less degree of tension; and the vibrations of the stretched skin are similar to those of the extended string. In wind instruments the vibrations of the air contained in them, and the variety of sounds so pleasing to the ear, are produced by various methods:—First, by holes or vents which are opened or stopped by an application of the fingers, or small metallic plates called keys, as in the German flute; secondly, by sliding tubes, as in the trombone, and recently in the trumpet; and, thirdly, by the admission or emission of air into or from tubes or pipes, by the means of valves, operated upon by keys placed in the front of the instrument, as in the organ.

Most metals are elastic; and the metals of which musical instruments are made are compounds in which the power of vibration and of elasticity are increased. Bells, the most common and the most favourite instruments formed of metal, depend on their composition and relative size for their diversity of tone; but the notes of musical boxes are regulated by the length and thickness of their springs.

From this brief explanation our readers will see how the principles of acoustics have been brought to bear upon music: they can carry out the inquiry at their leisure.

THE END.